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云南西藏蝠蛾属四新种*

(鳞翅目：蝙蝠蛾科)

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摘要　本文报道了云南西北部和西藏东南部的高寒草甸中分布的蝠蛾属4新种：剑川蝠蛾 *Hepialus jianchuanensis* sp. nov.，甲郎蝠蛾 *H. jialangensis* sp. nov.，察里蝠蛾 *H. zaliensis* sp. nov.，异翅蝠蛾 *Hepialus anomopterus* sp. nov. 4个新种都是冬虫夏草真菌的寄主昆虫。

关键词　鳞翅目，蝙蝠蛾科，蝠蛾属，新种

近年来，作者在整理分布于云南西北部和西藏东南地区的冬虫夏草菌寄主昆虫时，发现蝠蛾属 *Hepialus* 新种4个，它们都采自高寒草甸和草场之中，是中国特产珍稀中药材——冬虫夏草菌的寄主。模式标本均保存在中国科学院昆明动物研究所。

剑川蝠蛾，新种 ***Hepialus jianchuanensis*** **Yang(图1：a，b)**

雄蛾：体长12.0—14.5 mm；翅长11.5—13.0 mm.

雌蛾：体长14.0—17.5 mm；翅长18.5—21.5 mm。

体小、复眼褐色。触角丝状、淡黄色，连基节计共29节，喙退化，无下唇须。雄蛾前翅铁锈色(雌蛾前翅褐色)；前后两翅缘边密生长毛。前翅前缘和三角区有黑色斑纹；臀区基部有1条白纹；后翅灰黑色，无斑纹。前翅Sc基部远离翅前缘；Cup脉短，仅到翅中部；CuA与Cup脉之间有1条横脉连接，Cup脉与A脉之间有2条横脉连接；翅基部的M脉和Cu脉之间有1个小翅室区。后翅CuA脉与Cup脉在基部有1条横脉、Cup脉长，伸达翅后缘(图1：a)。前足胫节黄色有胫刺；爪弯曲，爪有中叶呈褐色。雄性外生殖器密生黄色长毛、抱器瓣长形，无骨化钩；背兜上部骨化成棕色三角区，中部有1个骨化成黑色的大齿和2个小齿，末端分成2尖岔；囊形突宽大，下端中部向内凹陷(图1：b)。

本种与近似种丽江蝠蛾 *H. lijiangensis* Chu *et* Wang不同点：前翅CuA与Cup脉之间有1横脉，Cup与A脉间有2条横脉相连接，M与Cu脉基部有1个小三角区，背兜中部有1大齿，2小齿，顶部形成棕色三角区。

正模♂，配模♀，副模51♂♂、14♀♀；云南剑川县老君山畜牧场，海拔2900—3100 m，1992.Ⅵ.23—28，李朝达、杨宗龙采。

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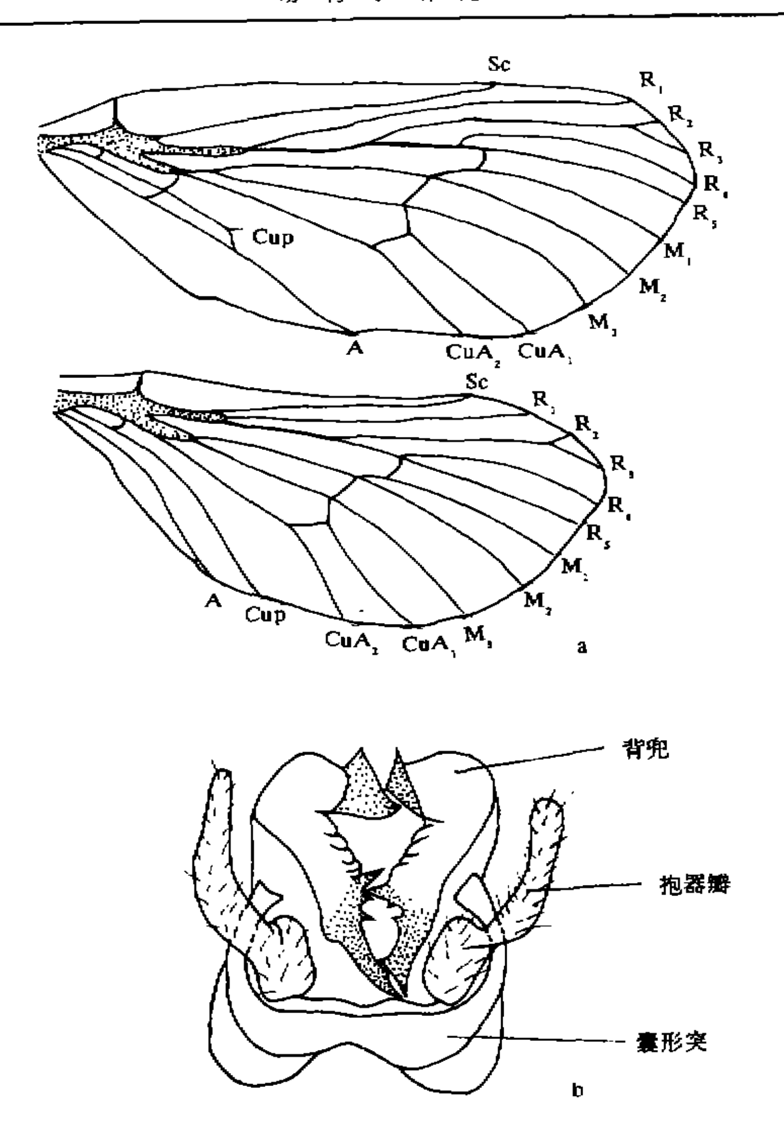


图1 剑川蝠蛾，新种 *Hepialus jianchuanensis* sp. nov.

a：翅脉 b：雄性外生殖器后面观

甲郎蝠蛾，新种 ***Hepialus jialangensis*** **Yang (图2：a，b)**

雄蛾： 体长17.0—18.4 mm，翅长19.0—20.0 mm。

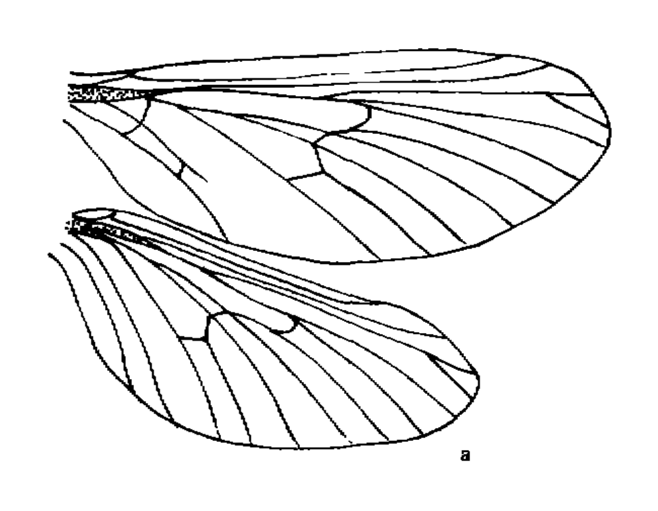
雌蛾： 体长18.5 mm，翅长22.5 mm。

触角丝状，短小，共23节，口器退化。翅黑褐色，无斑纹：前翅Cup脉短，仅达翅中部，CuA与Cup脉间有1横脉相连，在A与Cup脉间有2条横脉相连；后翅Cup脉长，伸达翅后缘(图2：a)。雄性外生殖器的抱器瓣粗短，密生细毛，背面中部有凹凸不平的粗糙区，下端形成1个黑色粗壮的骨化钩；背兜端部宽大、中部内缘有1列骨化的锯齿状小齿；囊形突下端中部向内凹陷(图2：b)。

本新种与同一山脉分布的近似种梅里蝠蛾 *H. meiliensis* Liang 的主要区别：前翅

Cup与A脉间有2条横脉相连接；雄性外生殖器抱器瓣粗短，外缘具粗糙区，背兜中间内缘有1列锯齿状骨化细齿，囊形突下端中部向内凹陷。

正模♂，配模♀，副模1♂；西藏左贡县甲郎乡梅里雪山西部，海拔4000—4600 m，1985. Ⅶ. 26—29，杨大荣、春生采。



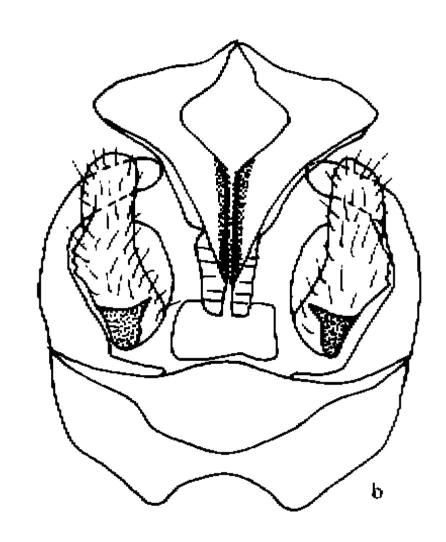


图2　甲郎蝠蛾，新种 *Hepialus jialangensis* sp. nov.

a：翅脉 b：雄性外生殖器后面观

察里蝠蛾，新种 *Hepialus zaliensis* **Yang(图3：a，b)**

雄蛾：体长15.5—16.5 mm，翅长17.0—19.5 mm。

雌蛾：体长17.0—18.5 mm，翅长21.0—24.0 mm。

体灰黑色，头部黑毛和白毛混生、复眼黑色；触角丝状23节；下唇须短，吻亦短，退化。翅灰褐色，外缘有7个小黑斑纹，翅三角区内有半月形白斑，亚前缘中部有白色条带；前翅Cup脉短，基部呈结节状，1条横脉从CuA脉中部横穿过Cup脉与A脉相连接，Cup脉顶端有1横脉与A脉相连接；后翅Cup脉发达，伸及翅后缘(图3：a)。雄性外生殖器的抱器瓣粗壮，下部宽大，端部有黑色的骨化钩；背兜宽阔，内缘骨化较强，骨化区顶端有3小尖齿；囊形突下部内凹成圆弧形(图3：b)。

察里蝠蛾与近似种芒康蝠蛾 *H. markamensis* Yang不同点：前翅Cup脉上下都有横脉连接，后翅Cup脉达翅后缘；雄性外生殖器背兜宽大，内缘无成行的锯齿状小齿，囊形突下部内凹形成圆弧形。

正模♂，配模♀，副模4♂♂，7♀♀；西藏芒康县察里雪山，北纬28°59′，东经98°48′，海拔4600—4900 m；1990. Ⅶ. 14。杨大荣、杨宗龙采。

异翅蝠蛾，新种 *Hepialus anomopterus* **Yang(图4：a，b)**

雄蛾：体长10.5—11.0 mm，翅长12.0—14.0 mm。

雌蛾：体长12.4—13.8 mm，翅长16.0—18.2 mm。

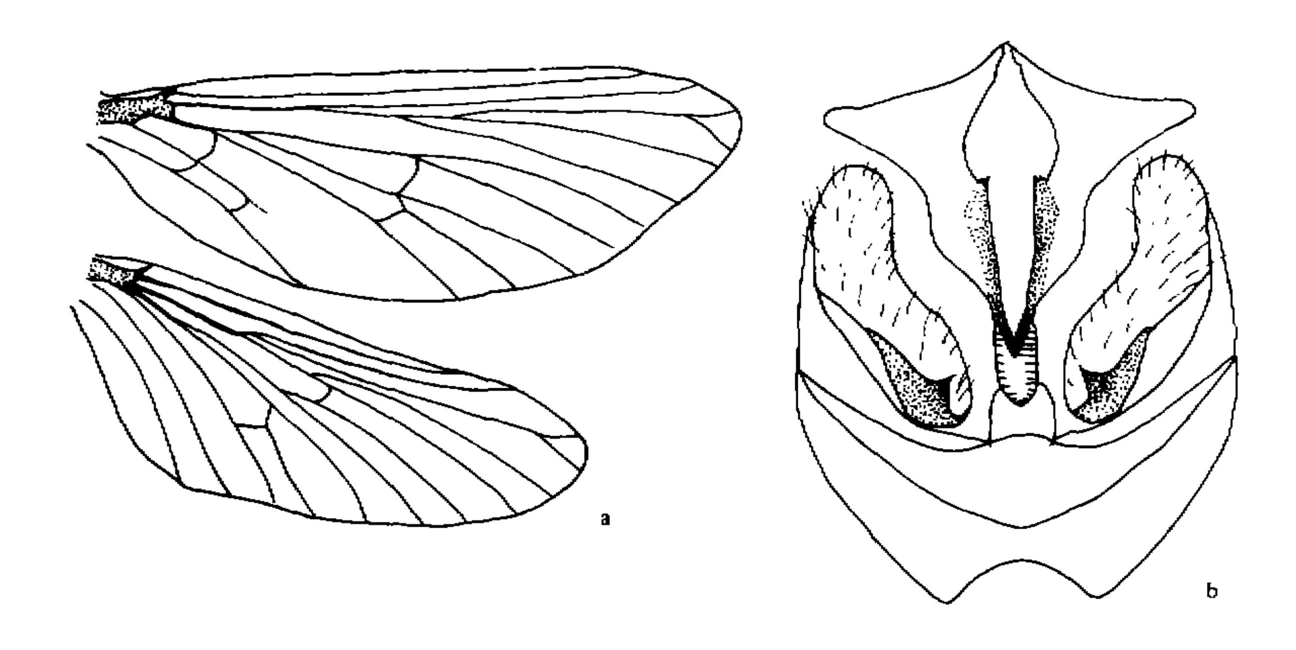


图 3 察里蝠蛾，新种 *Hepialus zaliensis* sp. nov

a：翅脉 b：雄性外生殖器后面观

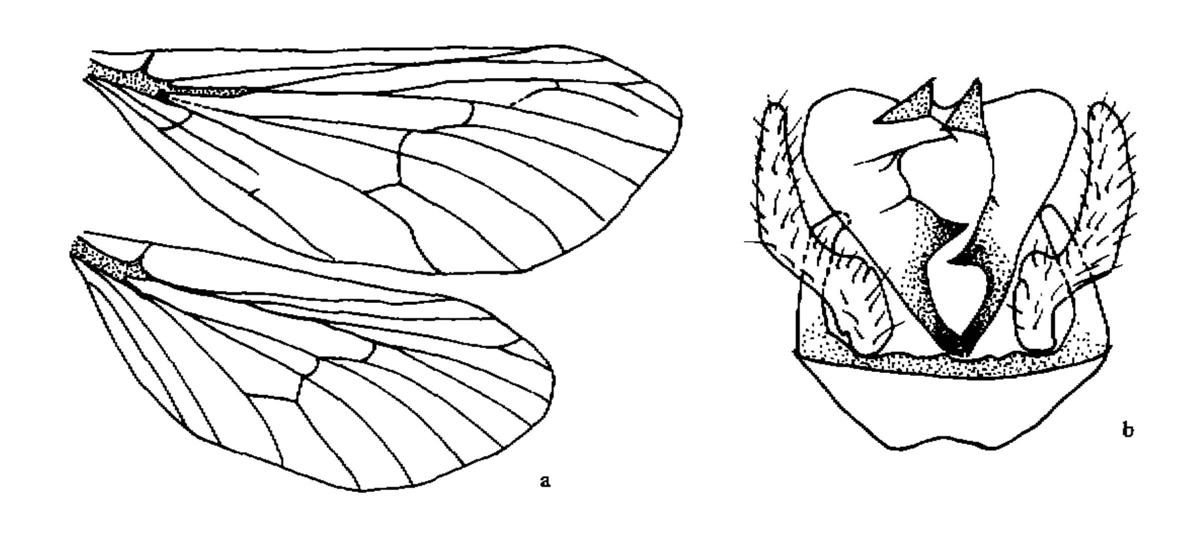


图 4 异翅蝠蛾，新种 *Hepialus anomopterus* sp. nov.

a：翅脉 b：雄性外生殖器后面观

体小，头棕色，覆以黄色毛；复眼黑色；触角黄色，丝状，共 25 节，各节具细毛；喙退化，无下唇须。前足胫节具胫刺，各足爪弯曲，爪中叶呈黄色，外围有一黑色圈。前

翅棕色，有褐色斑纹；Sc 脉和 R_1 脉中部靠拢合成一脉，到顶部又分开为 2 脉；R_4 脉不完整，未达翅外缘，在 R_2+R_3 脉中部有 1 横脉岔出，与不完整的 R_4 脉相连接，形成 1 条丁字形副脉；Cup 脉短小，仅达翅中部，Cup 脉中部有 1 条横脉分别与 CuA 和 A 脉连接，A 脉中部有 1 刺突。后翅正常，具完整的 Sc 脉和 R_1 脉及 R_4 脉，Cup 脉长，达及翅后缘(图 4：a)。雄性外生殖器被黄色长毛包覆，抱器瓣长形，下端部无骨化钩；背兜上部粗大，顶端有骨化成棕色的三角区；背兜中部内缘具有 2 个大骨化钩，尾端形成 3 个小齿；囊形突上部骨化成黄色，下端中央部内凹(图 4：b)。

本新种与近似种剑川蝠蛾 *H. jianchuanensis* Yang 不同点：个体小，前翅 Sc 脉中部与 R_1 脉合并，然后又分开；R_4 脉不完整；Cup 脉有横脉与上下脉相连接；雄性外生殖器背兜尖端分成 3 尖齿。

正模♂，配模♀，副模 3♂♂；云南剑川县老君山西北坡，海拔 2800—3100 m；1992. Ⅵ. 25—26，李朝达、杨宗龙采。

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FOUR NEW SPECIES OF THE GENUS *Hepialus* FROM YUNNAN AND XIZANG, CHINA

(Lepidoptera: Hepialidae)

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Abstract

In the present paper, four new species of the genus *Hepialus* are described. The type specimens collected from the snow mountains of alpine meadow are kept in the Kunming Institute of Zoology, Academia Sinica, Kunming, China.

1. *Hepialus jianchuanensis* sp. nov. (Figs. 1: a, b)

Body length: ♂ 12.0–14.5 mm; ♀ 14.0–17.5 mm.

Compound eyes brown; antennae filiform, 29 segments; forewing ferruginous, Cup short a cross vein above the Cup at the middle, and 2 cross veins below Cup at the middle and the outer, hindwing dark brown. The valvae of male genitalia thinner, without tooth, tegumen with one pair of triangular areas (weakly sclerotized at top) and hooks strongly sclerotized at the middle and the terminal, saccus concave at the middle.

It differs from *H. lijangensis* Chu *et* Wang in forewing with a cross vein present above the Cup at the middle and two cross veins below Cup at the middle and the outer, tegumen with one pair triangular areas weakly sclerotized at top (Fig. 1: b).

Hologype ♂, allotype ♀, paratype 51 ♂♂, 14 ♀♀, Yunnan: Jianchan County, Laojun Mountain(2900–3100 m), 23–28 June, 1992, leg. Li Chaoda *et al.*

2. *Hepialus jialangensis* sp. nov.(Figs. 2: a, b)

Body length: ♂ 17.0–18.4 mm; ♀ 18.5 mm.

Antennae filiform, 23 segments; forewing dark brown with a cross vein above the short Cup and 2 cross veins below Cup at the basal and outer parts, Cup of hidwing long, reaching the wing margin. The valvae of male genitalia covered with hairs and with one tooth at basal part, tegumen with most area strongly sclerotized at the middle and terminal parts, saccus concave at the middle.

Its differences from *H. meiliensis* Liang are forewing with one cross vein above and two cross present below Cup at the basal and outer parts (Fig. 2: a); genitalia so different as shown in Fig. 2: b.

Holotype ♂, allotype ♀, paratype1 ♀; Xizang: Zogang County, Meili snow Mountain (4000–4600 m), 26–29 July, 1985, leg. Yang Darong *et al.*

3. *Hepialus zaliensis* sp. nov. (Figs. 3: a, b)

Body length: ♂ 15.5–16.5 mm; ♀ 17.0–18.5 mm.

Body blackish-yellow. Head with black and white hairs. Antennae filiform. 23 segments. Wings grey-black, the trianglar area of forewing with white, half moon shaped spot. 2 cross veins present above and below Cup of forewing at middle. Cup of forewig running obliquely at the top. The valvae of male genitalia thick, with one tooth at the basal part; tegumen strongly sclerotized at the middle; saccus concave at the middle.

Its differences from *H. markamensis* Yang are Cup of forewing with 2 cross veins present above and below (Fig. 3: a), the tegumen of male genitalia with most area sreongly sclerotied and without tooth (Fig. 3: b).

Holotype ♂, allotype ♀, paratype 4 ♂♂, 7 ♀♀; Xizang: Markam County, Zhali snow Mountain, located at (28° 58′ N, 98° 48′ E: 4600–4900 m), 14 July, 1990, leg. Yang Darong *et al.*

4. *Hepialus anomopterus* sp. nov. (Figs. 4: a, b)

Body length: ♂ 10.5–11.0 mm; ♀ 12.4–13.8 mm.

Body brown. compound eye dark; antennae filiform and yollow, 25 segments. Forewing brown, the Sc in contact with R_1 at the middle and for some distance. The R_4 of forewing interrupted at its origin, but veins of hindwing are a complete veins system (Fig. 4: a). The valvae of male genitalia, thiner and without tooth, tegumen with one pair of triangular areas weakly sclerotized at top; tegumen with two teeth on each side, one at the middle and the other at the terminal (Fig. 4: b).

It ditters from *H. Jianchuanensis* Yang by the Sc in contact with R_1 at the middle and for some distance and Cup of forewing with a cross vein above and 2 below (Fig. 4: a); genitalia so different as shown in Fig. 4: b.

Holotype ♂, allotype ♀, paratypes1 ♂; Yunnan: Jianchan County, Laojun Mountain (2800-3100 m); 25-26 June, 1992, leg. Li Chaoda *et al.*

Key words Lepidoptera, Hepialidae, *Hepialus*, New species